

Appl. No. 10/039,232
Amdt. dated 2/10/05
Reply to Office Action of 12/15/04

Remarks

This amendment is submitted in response to the Office Action mailed 15-Dec-04. The above amendment to claim 36 corrects an inadvertent spelling error and raises no new issues. Entry is believed to be in order and is respectfully requested.

Claims 1-14, 16-22, 31-36, 40-42 and 25 [sic 44?]-45 stand under final rejection under 35U.S.C.103(a) as unpatentable over USP 6,051,335 ("335") in view of USP 4,999,149 ("149"). Claims 23 and 24 stand under final rejection under 35U.S.C.103(a) as unpatentable over the same references taken also with USP 3,852,224 ("224"). Claims 25-27, 29, 30, 37-39 and 43-45 stand under final rejection under 35U.S.C.103(a) as unpatentable over '335 and '149 taken also with USP 4,753,649 ("649"). Claim 7 has been indicated as allowable if rewritten in independent form. Applicants have carefully considered the Examiner's arguments with respect to the rejected claims and respectfully request reconsideration.

Applicants' claims are directed to a substrate that is coated with a specific carbohydrate-salt mixture and which has been regenerated by a water rinse. Dependent claims further define the coating and specify structures and products incorporating the coated substrate. The invention results in a durable, hydrophilic coating obtained without the need for forming a derivative that must be subsequently insolubilized or the need for use of a solvent. As explained in Applicants' specification in the paragraph bridging pages 10-11, the advantages are obtained preferably through the use of low DP cellulose, for example, 200 or 300 DP.

The '335 reference describes a substrate such as a nonwoven with a cellulose or cellulose derivative coating as a battery separator. For this application the cellulose coating has a higher DP of at least 350 and preferably above 600 and is obtained using a solvent solution and subsequent removal of the solvent. For regenerated cellulose, the viscose coated substrate is subsequently treated by both steps of coagulation and regeneration (col. 9, li. 16-19). The '335 reference is typical of the problems solved by the present invention.

The '149 reference does not deal with coated substrates at all but, rather, describes high strength cellulose fibers or films which are solubilized in zinc chloride and extruded into a coagulation medium. Tension is applied to the fibers or film for crystallization, and a water bath is used to fully crystallize the fibers or film. For low strength applications the stretching step may be omitted. This reference also fails to disclose any suggestion to avoid the coagulation and solvent removal steps.

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Applicants respectfully submit that the '335 and '149 references cannot be combined as suggested by the Examiner in rejecting Applicants' claims without impermissible use of hindsight in view of the instant invention. Specifically, the battery separator coated substrate has no need for high strength cellulose properties since it has a substrate for support. On the other hand, there is no suggestion in the '149 reference that the cellulose materials have any application as coatings. Even in the absence of this argument, the '335 reference uses high DP cellulose for the battery separator application and not the low DP cellulose used in the '149 reference, and there is no suggestion that one type can be substituted for the other. Finally, the combined teachings would still lead one of skill to the steps of coagulation and solvent removal and away from the water rinse regeneration of the present invention. The solvent removal wash of a coagulated cellulose is simply not equivalent to regeneration by water rinse as in the present invention.

With respect to the rejection of Applicants' dependent claims, it is true as stated by the Examiner that Applicants' prior response primarily addressed the rejection as applied to independent claim 1. However, this was due to a sincere belief that claim 1 clearly defined patentably over the applied references and, therefore, the dependent claims are also allowable for the same reasons – which belief Applicants maintain. As to claims 5 through 7, for example, the stand alone fibers and films of '149 do not teach coating compositional ranges for coating substrates in the absence of some motivation within the four corners of the references. As to the product application claims 26, 27, 29, 30, 33, 38, 39, 44 and 45, the additional teachings of the '649 reference are unrelated to the regenerated carbohydrate coated substrate of the present invention or, for that matter, to the battery separator of '335 or high strength fiber/film of '149 to establish obviousness, in the sense of 35USC103(a). Therefore, as to these dependent claims particularly, Applicants submit that the Examiner's burden has not been met.

Accordingly, it is respectfully requested that the Examiner reconsider the rejections applied as above which each relies on the combined teachings of the '335 and '149 references as applied against claim 1. After doing so, it is believed that the Examiner will agree that the rejections should be withdrawn and find the application in condition for allowance.

Such favorable action is respectfully solicited.

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Respectfully submitted,

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